National Information Exchange Model (NIEM)

Executive Introduction

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NIEM

BRIDGING INFORMATION SYSTEMS

Information sharing is a national imperative

Detecting, preventing, responding to and investigating crimes, disasters and terrorist acts requires the exchange of information among multiple engaged agencies.

Exchanges must be timely and accurate and therefore highly automated.

Most existing computer systems are not designed to facilitate information sharing across disciplines and jurisdictions.

Automated information sharing between agencies requires the definition of common standards for linking disparate systems.

Local, state, tribal, and federal agencies need to adopt common information sharing standards to facilitate information sharing

Information Exchanges Help Do The Job
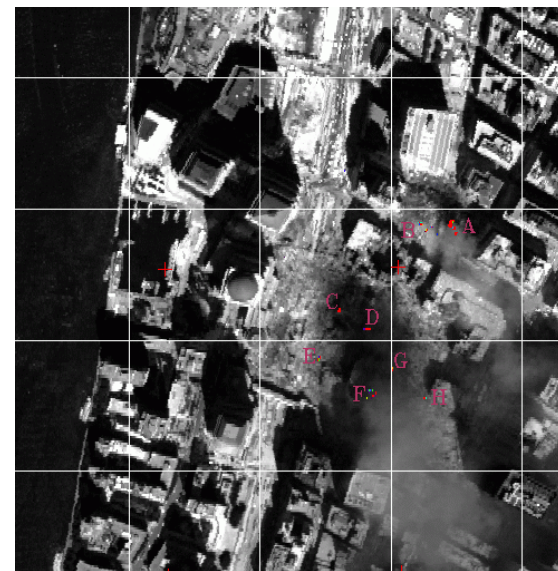
- Exchanges using a national standard will make it easier to:

  - Forward incident and arrest data from police to prosecutors
  - Determine the status of beds, staff, and resources at hospitals to allow EOC's and EMS personnel to allocate resources better
  - Send call data from a 9-1-1 center to multiple dispatch centers
  - Report suspicious activities from field officers to investigators at state and national levels and from one fusion center to another
  - Report the status of emergency response teams and resources
  - Identify units and status of resources in adjacent communities in support of mutual aid agreements
  - Screen persons or cargo entering the country
  - And in many other scenarios

- A data **standard** for enabling information exchanges across multiple communities of interest, using **agreed-upon terms, definitions**, and **formats** independent of the way data is stored in individual systems.

- A way to achieve consensus on the content of specific exchanges

- A structured and disciplined approach to data interoperability

The Historical Perspective

- NIEM was launched on February 28, 2005, through a partnership agreement between the U.S. Department of Justice (DOJ) and the U.S. Department of Homeland Security (DHS)
- NIEM was initially populated by the work from the highly successful Global Justice XML Data Model, including data elements, structure, and the governance model
- NIEM was expanded in its first release by additional communities of interest including the intelligence community, disaster management, infrastructure protection, and international trade
- The Program Manager of the Information Sharing Environment fostered the further national emphasis on the use of NIEM in support of counter-terrorism initiatives
- Pilot projects in DOJ and DHS have tested the utility of the initial release of NIEM, and efforts are underway to create pilot projects in state and local governments

- The production release of NIEM 1.0 is now available at www.niem.gov.

Defining Data Components

Defining data components unique to a domain will be done by subject matter experts who are representatives of the domain following basic rules for definitions and terms

A group representing all participating domains will define those data components that are universal or commonly used by more than one domain again using the same basic rules
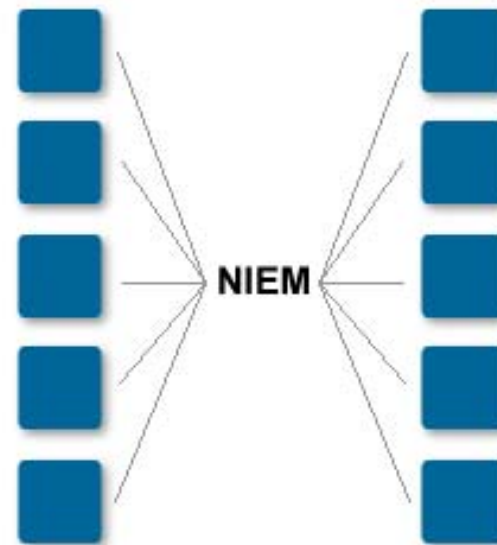
Replace this approach

With a simpler approach
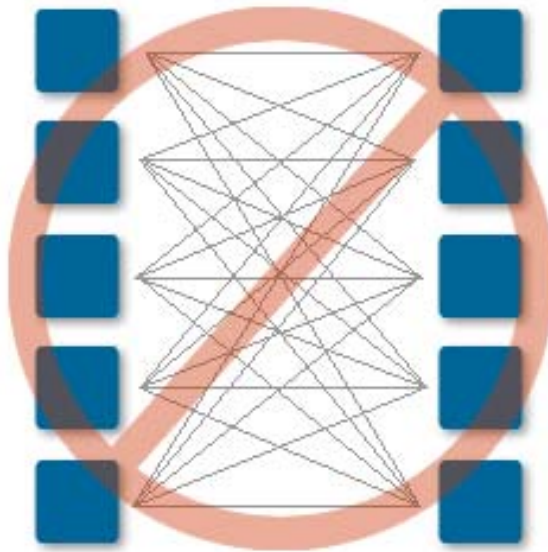
Individual interfaces

One standard

How NIEM works to support information sharing

- Create a scenario to define the need for information sharing between organizations

- Define the requirements including the data components that should be included

- Use the data component standards from NIEM to design the exchange, extending them where needed

- Document the exchange using technology standards
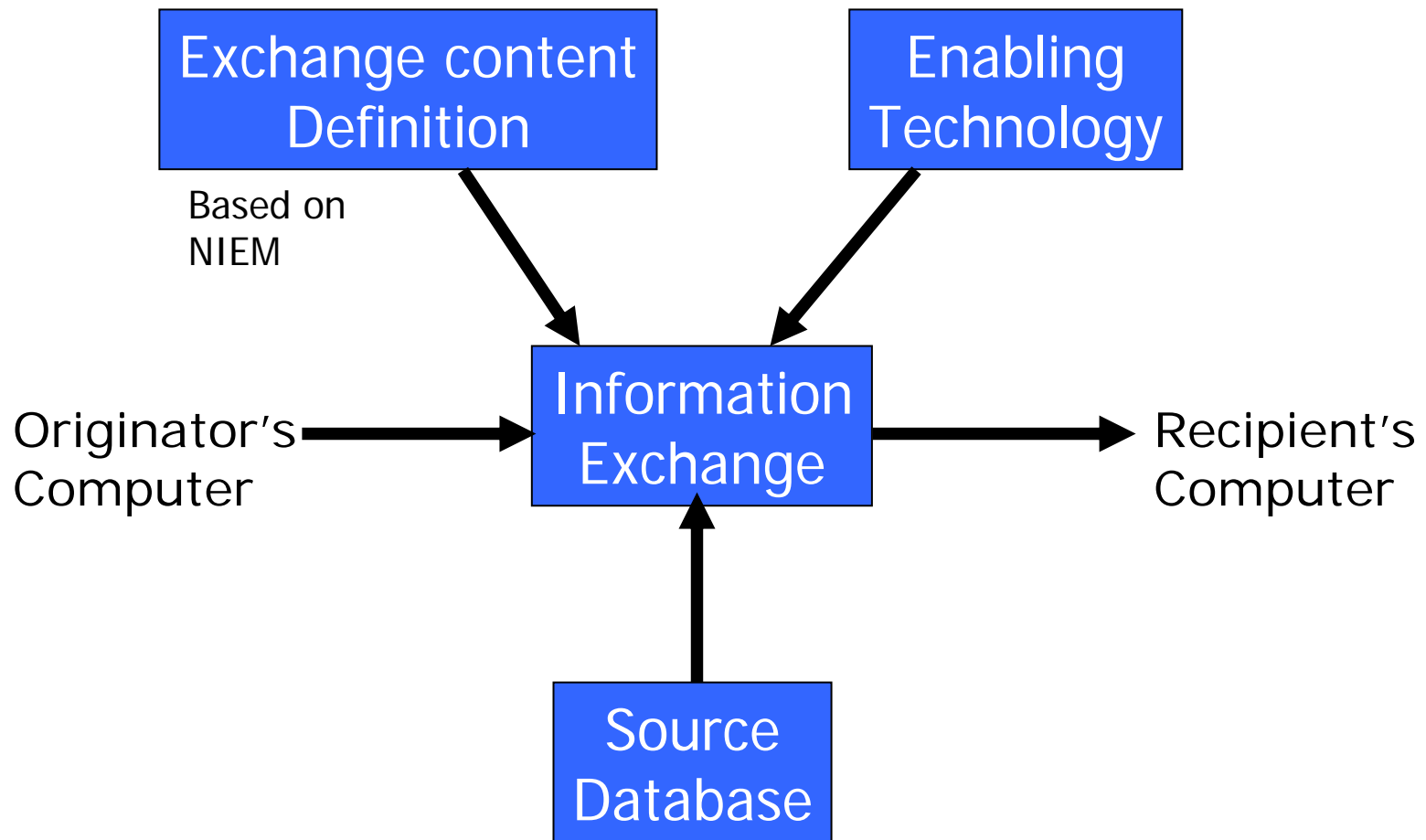
- Implement the exchange

Scenario Planning

Requirements Analysis

Data Mapping

Publish and Implement

The NIEM Value Proposition

- Agencies and organizations that adopt NIEM will be able to:

    - Gain faster access to critical information from other participating agencies and organizations using NIEM
    - Create automated information exchanges with partners in multiple jurisdictions and disciplines at substantially less cost
    - Leverage existing systems and avoid high costs of system replacement or expensive single interface development
    - Engage additional information exchange partners in the future without incurring substantial new costs
    - Tailor specific exchanges to meet their own needs and the needs of mission critical partners using NIEM and related technologies
    - More easily participate in regional, state, and national information sharing systems that are or will be based on NIEM standards
    - Participate in and contribute to shaping national standards for information sharing
    - Contribute to helping solve the national information sharing problem

Relating NIEM to Other Information Sharing Mandates and Initiatives

- Homeland Security Presidential Directive (HSPD-5)

- Homeland Security Act 2002

- Intelligence Reform and Terrorism Prevention Act—2004

- Executive Order 13388—Guidelines and Requirements for the Information Sharing Environment (ISE)—2005

- Law Enforcement Information Sharing Program (LEISP)

The Future of NIEM

- Agencies can begin now to implement information exchanges based on NIEM by participating communities of interest involving local, state, tribal and federal agencies and organizations in support of homeland security, justice and public safety missions

- NIEM is being used to create national priority exchanges for suspicious activity reporting, incident reporting, case management, person and cargo screening, disaster management and other critical areas of national significance

- A new release with additional improvements will be issued in 2007.

- There will be expanded training and technical assistance efforts to help participants implement NIEM-based exchanges

- Eventually, the intent is to expand the participating communities of interest to include health care, transportation, education and others, creating parallel governance structures to include representation in the expansion of the data model

- Choose to make NIEM the basis for information exchanges
- Adopt a service oriented architecture for your information systems
- Arrange for training for your developers
- Identify key exchanges with other organizations
- Use NIEM tools to develop exchange documentation
- Design and implement the exchanges using web services

Lessons learned from past experience

- All exchanges should be derived from operational needs for information
- Subject matter experts should be used to define the requirements for each information exchange from the beginning
- The right enterprise architecture is critical to success
- Maximize the use and application of existing standards for information sharing, particularly open standards such as XML, web services, etc.
- Build on past successes in comparable jurisdictions
- Seek advice from technical experts to design exchanges once the operational requirements are determined

Tools and Support Services

- Documentation
  - *Introduction to NIEM*
  - *Concept of Operations*
  - *User Guide*
  - *Naming and Design Rules*

- Standards
  - NIEM 1.0
  - Documentation specs

- Training and Technical Assistance
  - NIEM website
  - Training materials
  - Help desk and knowledge base
  - National and regional training
- Tools
  - Automated documentation generator
  - Tools to browse the model
  - IEPD Clearinghouse

All available through
www.niem.gov

Conclusion

- For more information visit the NIEM web site (http://www.niem.gov)

- Contact NIEM by email at information@niem.gov

  Questions and Discussion